



CARDIAC METASTASIS INDUCED WITH RENAL CELL CARCINOMA: A CASE REPORT AND THERAPEUTIC CHALLENGE

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ABSTRACT

Pericardial metastases are the most common type of cardiac metastasis, followed by epicardial and myocardial metastasis. Endocardial metastases, usually localized to the right heart, are rare and usually associated with tumors with endovascular growth such as renal, liver and uterine cancers. Cardiac metastasis from renal cell carcinoma (RCC) is very rare. We reported the case of 40-year-old man with cardiac metastasis induced with renal cell carcinoma. As new diagnostic technologies and improved survival of oncological patients may increase the incidence of metastatic cardiac carcinogenicity in the future and awareness to their existence and knowledge of their presentation.

KEYWORDS: metastasis, endocardium, renal cancer.

INTRODUCTION:

Pericardial metastases are the most common type of cardiac metastasis, followed by epicardial and myocardial metastasis.¹ Endocardial metastases, usually localized to the right heart, are rare and usually associated with tumors with endovascular growth such as renal, liver and uterine cancers. Cardiac metastasis from renal cell carcinoma (RCC) is very rare.² The most common mechanism of cardiac metastasis is that extends into the renal vein and the inferior vena cava in 5% to 15% of patients, and into the right atrium in about 1% of patients, thereby obstructing venous return to the heart.^{3,4} Other possible mechanisms are primary tumor that metastasizes to the heart, which occurs in 10% to 20% of patients who are dying of widespread, systemic RCC.^{5,6} We discussed the case of cardiac metastasis induced with renal carcinoma. It was therapeutic challenge for the cardiologists & also urologists.

CASE PRESENTATION:

A 40-year-old man with a history of renal carcinoma experienced palpitations and fall down blood pressure. The patient had history of chest pain, shortness of breath or dizziness.

On physical examination, the patient vitals sign was abnormal (blood pressure 96/50 mmHg and heart rate 98 beats/min). The patient's lungs were clear on percussion with no abnormalities in the cardiac examination. The patient's USG of whole abdomen right kidney shows hydronephrosis with multiple calculi, largest measuring 12.5mm seen at mild calyx. An electrocardiogram showed Concentric LVH with fair LV systolic function. LV mass seen present size 4.0cm*2.0cm. End signal intensity mass lesion measuring larger than 70*55*45mm in the visualized part of the left ventricle heart with filling defect causing infiltration of the postero inferior wall of the left ventricle metastases (figure 1). Histopathological examination of the tumor specimens showed clear cell renal carcinoma. Then systemic immunotherapy was started with corticosteroids-Wysolone, at a dose of 7.5 mg (6pm) and 2.5 mg (4 pm). Patient was referred to national cancer care centre.

DISCUSSION:

Cardiac metastases are 20 to 40 times more common than primary cardiac malignancies, and have been reported in different studies in approximately 2% to 18% of cases at autopsies.⁷ Although primary cardiac tumors are rare, cardiac metastases are not infrequent, with autopsy series having reported a 5% to 20% incidence of metastatic carcinomas to the heart and pericardium in patients dying of malignancies. Cardiac metastasis from renal cell carcinoma (RCC) is very rare.⁸ The most common mechanism of cardiac metastasis is that extends into the renal vein and the inferior vena cava in 5% to 15% of patients, and into the right atrium in about 1% of patients, thereby obstructing venous return to the heart. Other possible mechanisms are primary tumor that metastasizes to the heart, which occurs in 10% to 20% of patients who are dying of widespread, systemic RCC.⁹ such cases due to their rarity pose a therapeutic challenge.

CONCLUSION:

Here, we report a cardiac metastasis influenced with renal cell carcinoma. As new diagnostic technologies and improved survival of oncological patients may increase the incidence of metastatic cardiac carcinogenicity in the future and awareness to their existence and knowledge of their presentation.

Competing interests: The authors declare no competing interests.

Consent:

Written informed consent was obtained from the patient for publication of this case report and any accompanying image.

Abbreviations:

CT: computed tomography

RCC: renal cell carcinoma

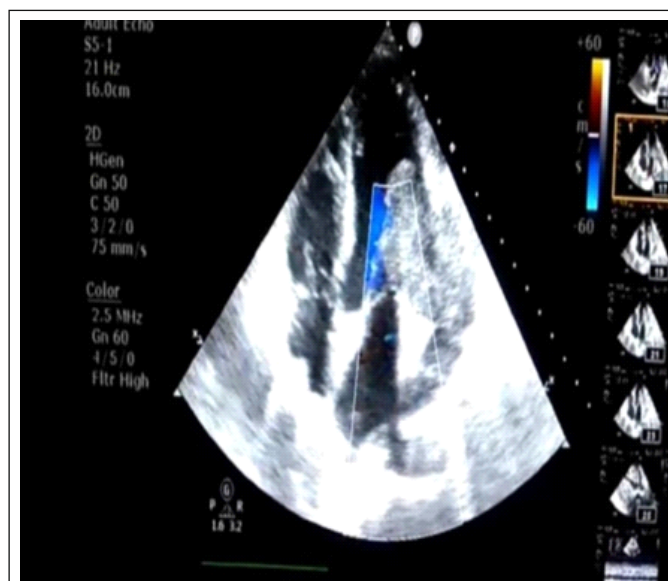


Figure 1: Echocardiography showing Left Ventricle mass seen present size 4.0cm*2.0cm

REFERENCES:

- i. Alghamdi A, Tam J. Cardiac metastasis from a renal cell carcinoma. The Canadian Journal of Cardiology. 2006; 22(14): 1231-32.
- ii. Hoffmann U, Globits S, Frank H. Cardiac and paracardiac masses. Current opinion on diagnostic evaluation by magnetic resonance imaging. Eur Heart J 1998;19(4):553-63.
- iii. Atik FA, Navia JL, Krishnamurthi V, Singh G, Shiota T, Pitas G, et al. Solitary massive right ventricular metastasis of renal cell carcinoma without inferior vena cava or right atrium involvement. J Card Surg 2006;21(3):304-6.
- iv. Custódio S, Joaqui A, Peixoto V, et al: Metastatic renal cell carcinoma: the importance of immunohistochemistry in differential diagnosis. Case Rep Oncol 2012;5:30-34.
- v. Bouzouita M, Ben Slama MR, Mohamed MOS, et al: Cardiac metastasis of renal cell carcinoma, a rare location. Prog Urol 2011;21:492-494.
- vi. Lam KY, Dickens P, Chan AC. Tumors of the heart. A 20-year experience with a review of 12,485 consecutive autopsies. Arch Pathol Lab Med 1993;117:1027-31.
- vii. Roberts WC. Primary and secondary neoplasms of the heart. Am J Cardiol 1997;80:671-82.

- viii. Mukai K, Shinkai T, Tominaga K, Shimosato Y. The incidence of secondary tumors of the heart and pericardium: A 10-year study. *Jpn J Clin Oncol* 1988;18:195-201.
- ix. Nakayama R, Yoneyama T, Takatani O, Kimura K. A study of metastatic tumors to the heart, pericardium and great vessels. I. Incidences of metastases to the heart, pericardium and great vessels. *Jpn Heart J* 1966;7:227-34.
- x. Aburto J, et al: Renal cell carcinoma, metastatic to the left ventricle. *Tex Heart Inst J* 2009;36:48-49.